Application No. 10/518,815 Amendment Dated March 6, 2008 Reply to Advisory Office Action of February 19, 2008

## **Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

## **Listing of Claims:**

Claim 1. (currently amended) A compound of formula (I):

in which:

X is N-or NH;

Y is :CH, CO, CH<sub>2</sub> or :CNR<sup>2</sup>R<sup>3</sup>, where R<sup>2</sup> and R<sup>3</sup> are independently hydrogen,  $C_{1-6}$  alkyl or  $C_{3-6}$  cycloalkyl;

R is aryl or heteroaryl optionally substituted by halogen, amino, hydroxy, cyano, nitro, trifluoromethyl, carboxy,  $CONR^5R^6$ ,  $SO_2NR^5R^6$ ,  $SO_2R^4$ ,  $NHSO_2R^4$ ,  $NHCOR^4$ , ethylenedioxy, methylenedioxy,  $C_{1-6}$  alkyl,  $C_{1-6}$  alkoxy,  $SR^4$  or  $NR^5R^6$  where R4 is hydrogen,  $C_{1-6}$  alkyl or  $C_{3-6}$  cycloalkyl,  $R^5$  and  $R^6$  are independently hydrogen,  $C_{1-6}$  alkyl or together with the nitrogen atom to which they are attached form a 5- or 6-membered saturated ring optionally containing a further O, S or  $NR^4$  group;

or R is  $C_{1-6}$  alkyl or  $C_{3-6}$  cycloalkyl,

 $R^1$  is a group  $Y(CH_2)pR^7$  where p is 0, 1 or 2 and Y is O or  $NR^8$  where  $R^8$  is hydrogen,  $C_{1-6}$  alkyl or  $C_{3-6}$  cycloalkyl;

and R<sup>7</sup> is a 5- or 6-membered saturated ring containing one or more O, S or N atoms, aryl or a heteroaryl group containing one to four heteroatoms selected from O, S or N, the saturated ring, aryl and heteroaryl groups all being optionally substituted by halogen, amino, hydroxy, cyano, nitro, trifluoromethyl, carboxy, CONR<sup>5</sup>R<sup>6</sup>, SO<sub>2</sub>NR<sup>5</sup>R<sup>6</sup>, SO<sub>2</sub>R<sup>4</sup>, NHSO<sub>2</sub>R<sup>4</sup>, NHCOR<sup>4</sup>, C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkoxy, SR<sup>4</sup> or NR<sup>5</sup>R<sup>6</sup> where R4 is hydrogen, C<sub>1-6</sub> alkyl or C<sub>3-6</sub> cycloalkyl, R<sup>5</sup> and R<sup>6</sup> are independently hydrogen, C<sub>1-6</sub> alkyl or together with the nitrogen atom to which they are attached form a 5- or 6-membered saturated ring optionally containing a further O, S or NR<sup>4</sup> group;

or R¹ is a group NR³R¹⁰ where R³ and R¹⁰ are independently hydrogen or C₁₋₆ alkyl, or R³ and R¹⁰ together with the nitrogen atom to which they are attached form a 5 or 6-membered saturated ring optionally containing a further O, S or N atom and optionally substituted by a second NR³R¹⁰ where R³ and R¹⁰ are independently hydrogen or C₁₋₆ alkyl or R³ and R¹⁰ together with the nitrogen atom to which they are attached form a 5 or 6-membered saturated ring optionally containing a further O, S or NR⁴, CO₂C₁₋₆ alkyl, CONR¹¹R¹² where R¹¹ and R¹² are independently hydrogen or C₁₋₆ alkyl, aryl or heteroaryl group optionally substituted by halogen, amino, hydroxy, cyano, nitro, trifluoromethyl, carboxy, CONR⁵R⁶, SO₂NR⁵R⁶, SO₂R⁴, NHSO₂R⁴, NHCOR⁴, C₁₋₆ alkyl, C₁₋₆ alkoxy, SR⁴ or NR⁵R⁶ where R⁴ is hydrogen, C₁₋₆ alkyl or C₃₆ cycloalkyl, R⁵ and R⁶ are independently hydrogen, C₁₋₆ alkyl or together with the nitrogen atom to which they are attached form a 5- or 6-membered saturated ring optionally containing a further O, S or NR⁴ group;

and pharmaceutically acceptable salts or solvates thereof.

Claim 2. (previously presented) A compound according to claim 1 in which X is N and Y is :CH.

Claim 3. (previously presented) A compound according to claim 1, wherein R is C<sub>1-4</sub>alkyl, or phenyl substituted by halogen, SO<sub>2</sub>Me, C<sub>1-6</sub>alkoxy or C<sub>1-4</sub>alkyl.

Claim 4. (previously presented) A compound according to claim 1, wherein  $R^1$  is a group  $Y(CH_2)pR^7$  where p is 0 and Y is  $NR^8$  where  $R^8$  is hydrogen and  $R^7$  is substituted phenyl.

Claim 5. (previously presented) A compound according to claim 1, wherein R<sup>1</sup> is NR<sup>9</sup>R<sup>10</sup> where R<sup>9</sup> and R<sup>10</sup> are hydrogen or C<sub>1-3</sub> alkyl or together with the nitrogen atom to which they are attached form a 5 or 6-membered saturated ring optionally containing a further O, S or NR<sup>4</sup>.

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Claim 6. (previously presented)
                                     A compound selected from:
1-[9-(4-Chlorophenyl)-2-cyano-9H-purin-6-yl]-L-prolinamide,
9-(4-Chlorophenyl)-6-(4-pyrrolidin-1-ylpiperidin-1-yl)-9H-purine-2-carbonitrile,
9-(4-Chlorophenyl)-6-[(3-pyrrolidin-1-ylpropyl)amino]-9H-purine-2-carbonitrile,
6-(4-Aminopiperidin-1-yl)-9-(4-chlorophenyl)-9H-purine-2-carbonitrile,
6-[(2-Aminoethyl)amino]-9-(4-chlorophenyl)-9H-purine-2-carbonitrile,
9-(4-Chlorophenyl)-6-(dimethylamino)-9H-purine-2-carbonitrile,
9-(4-Methylphenyl)-6-pyrrolidin-1-yl-9H-purine-2-carbonitrile,
9-(4-Methoxyphenyl)-6-pyrrolidin-1-yl-9H-purine-2-carbonitrile,
9-(4-chlorophenyl)-6-pyrrolidin-1-yl-9H-purine-2-carbonitrile,
9-(4-Chlorophenyl)-6-(ethylamino)-9H-purine-2-carbonitrile,
tert-Butyl 4-[9-(4-chlorophenyl)-2-cyano-9H-purin-6-yl]piperazine-1-carboxylate,
9-(4-Chlorophenyl)-6-piperazin-1-yl-9H-purine-2-carbonitrile,
9-(2-Chlorophenyl)-6-morpholin-4-yl-9H-purine-2-carbonitrile
9-(3,4-Difluorophenyl)-6-morpholin-4-yl-9H-purine-2-carbonitrile,
9-(4-Isopropylphenyl)-6-morpholin-4-yl-9H-purine-2-carbonitrile,
9-(4-Methoxyphenyl)-6-morpholin-4-yl-9H-purine-2-carbonitrile,
9-(3-Chlorophenyl)-6-morpholin-4-yl-9H-purine-2-carbonitrile,
9-[4-(Methylsulfonyl)phenyl]-6-morpholin-4-yl-9H-purine-2-carbonitrile,
6-[(4-Chlorophenyl)amino]-9-ethyl-9H-purine-2-carbonitrile,
9-(4-Chlorophenyl)-6-morpholin-4-yl-9H-purine-2-carbonitrile,
8-Amino-6-[(4-chlorophenyl)amino]-9-ethyl-9H-purine-2-carbonitrile,
8-Amino-9-(4-chlorophenyl)-6-morpholin-4-yl-9H-purine-2-carbonitrile.
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9-(4-Chlorophenyl)-6-morpholin-4-yl-8-oxo-8,9-dihydro-7H-purine-2-carbonitrile, 9-(4-Chlorophenyl)-8-(dimethylamino)-6-morpholin-4-yl-9H-purine-2-carbonitrile,

and pharmaceutically acceptable salts thereof.

Claim 7. (cancelled)
Claim 8. (cancelled)
Claim 9. (cancelled)

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Claim 10. (previously presented) A pharmaceutical composition which comprises a compound of the formula (I) as defined in claim 1 or a pharmaceutically acceptable salt thereof and a pharmaceutically acceptable diluent or carrier.

Claim 11. (previously presented) A method for producing inhibition of at least one cysteine protease chosen from cathepsins S, K, L, F and B in a mammal comprising administering to said mammal an effective amount of a compound as defined in claim 1, or a pharmaceutically acceptable salt thereof.

Claim 12. (previously presented) A method for treating pain in a mammal in need of such treatment comprising administering to said mammal an effective amount of a compound as defined in claim 1, or a pharmaceutically acceptable salt thereof.

Claim 13. (previously presented) A method for inhibiting Cathepsin S in a warm blooded animal comprising administering a compound of the formula (I) as defined in claim 1 or a pharmaceutically acceptable salt thereof to a warm blooded animal.

Claim 14. (previously presented) A pharmaceutical composition which comprises a compound of the formula (I) as defined in claim 6 or a pharmaceutically acceptable salt thereof and a pharmaceutically acceptable diluent or carrier.

Claim 15. (previously presented) A method for producing inhibition of at least one cysteine protease chosen from cathepsins S, K, L, F and B in a mammal comprising administering to said mammal an effective amount of a compound as defined in claim 6, or a pharmaceutically acceptable salt thereof.

Claim 16. (previously presented) A method for treating pain in a mammal in need of such treatment comprising administering to said mammal an effective amount of a compound as defined in claim 6, or a pharmaceutically acceptable salt thereof.

Claim 17. (previously presented) A method for inhibiting Cathepsin S in a warm blooded animal comprising administering a compound of the formula (I) as defined in claim 6 or a pharmaceutically acceptable salt thereof to a warm blooded animal.